



CERTIFIED MAIL 7020 0090 0000 0566 3213

October 27, 2022

Air and Radiation Division
U. S. Environmental Protection Agency, Region V
77 West Jackson Boulevard,
Chicago, IL 60604

Re: Submittal of U. S. Steel – Minntac and Keetac Compliance Reports per the Requirements of 40 CFR Part 52.1235(e)(5) through (7) – Taconite Regional Haze FIP

U. S. Steel – Keetac (Keetac)

Keetac utilizes Ametek Model 920 analyzers to measure NO_x and SO₂ (Serial Number AE-920-10086-1).

Keetac submits quarterly excess emission reports to the Minnesota Pollution Control Agency. Therefore, to fulfill the requirements of the excess emissions and monitoring system performance reports, a copy of the quarterly excess emissions report for the 3rd quarter is included in this submittal. Where EPA's requirements per the regulation differ from Minnesota's requirements, this information is also being included.

Any periods of startup and shut down are reported in Section 5 of the DRF-1 Form included in this submittal. There were no deviations during this reporting period.

The emission limitation for SO₂ is 225 lbs/hr – 30 day rolling average. There were no deviations associated with the emission limit.

The emission limitation for NO_x became effective on September 8, 2019 and is 1.5 lbs/MMBtu based on a 30-day rolling average. However, for any 30 or more consecutive days when only natural gas is used, a limit of 1.2 lbs/MMBtu applies. Refer to attachment 1.

The last CEMS CGA was conducted on September 15, 2022 and is included in this submittal. The last CEMS RATA was conducted on March 22, 2022 and was previously provided.

U. S. Steel – Minntac (Minntac)

Minntac utilizes Ametek Model 920 analyzers to measure NO_x and SO₂. The table below outlines the serial numbers for each of the units:

Line 3	AE-920-10086-1
Line 4	AE-920-10086-2
Line 5	AE-920-10086-3
Line 6	ZA-920-10336-1

Minntac submits quarterly excess emission reports to the Minnesota Pollution Control Agency. Therefore, to fulfill the requirements of the excess emissions and monitoring system performance reports, a copy of the quarterly excess emissions report for the 3rd quarter is included in this submittal. Where EPA's requirements per the regulation differ from Minnesota's requirements, this information is also being included.

Any periods of startup and shut down are reported in Section 5 of the DRF-1 Form included in this submittal. There were no deviations during this reporting period.

The emission limitation for SO₂ is a 30-day rolling average aggregate limit for indurating lines 3-7 of 498 lbs/hr when all lines are producing flux pellets, 630 lbs/hr when producing acid pellets or using the equation in 40 CFR 52.1235(b)(2)(iii) when the 30 day period includes both acid and flux pellet production. There were no deviations associated with the emission limit.

The emission limitation for NO_x on Lines 3-7 is 1.6 lbs/MMBtu averaged across Lines 3-7 and based on a 30-day rolling average. There were no deviations associated with the emission limit.

The latest CEMS RATA was conducted on Lines 3-7 on May 24 – June 3, 2022. This report was submitted separately. The last CGAs were performed on August 23rd and 24th of 2022 and are included in this submittal.

If you should require any additional information, please contact me at scampbell@uss.com or 218-778-8684.

Sincerely,



Stephani Campbell
Environmental Control



U. S. Steel Corporation
Minnesota Ore Operations
P.O. Box 217
Keewatin, MN 55753

CERTIFIED MAIL 0721 0350 0002 0965 3308

October 27, 2022

Air Quality Compliance Tracking Coordinator
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Re: U. S. Steel – Keetac Administrative Order by Consent
Quarterly Continuous Monitoring System Deviation Report

Dear Supervisor:

Enclosed with this letter is U. S. Steel – Keetac's (Keetac) Quarterly Continuous Emission Monitoring System Deviation report for the 3rd quarter of 2022. The Continuous Emission Monitoring System (CEMS) was certified on Keetac's Waste Gas Stack on November 6th, 2008. The CEMS was installed as a part of Keetac's Administrative Order by Consent with the State of Minnesota effective September 27th, 2007.

Deviations associated with Emission Limits

There were no deviations associated with emission limits.

Deviations associated with Monitor Downtime

There were zero instances of monitor downtime that affected either NO_x or SO₂. The individual downtime duration and cause is listed in the monitor downtime section of this report.

Deviations associated with Monitor Bypass

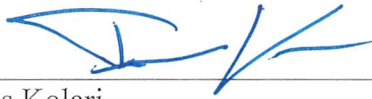
Keetac utilizes a grate/kiln system for pelletizing taconite. Although this is an extremely hot process (with temperatures exceed 2500 °F in the kiln), the equipment is designed to withstand the high temperatures and will do so during normal operation. However, the grate is very susceptible to heat damage during upset conditions or if stopped for any reason while it is hot. To prevent equipment damage and heat related safety issues during these situations, large amounts of heat must be released from the grate as soon as possible. For that reason the system was designed

such that when the grate stops or gets overheated, a stack cap is lifted to release heat through an emergency stack. At this time the monitor is bypassed. These situations are the only times the monitor is bypassed. Because they represent upset conditions or process downtime (production loss), the company has a strong vested interest in minimizing both the number and duration of occurrences.

The times listed in the monitor bypass section are when the grate emergency stack cap is open and there is combustion in the kiln. This is the only time when any NO_x and SO₂ are emitted. Times when the cap is open but there is no combustion in the kiln are not listed.

If you have any questions concerning these forms, please contact Stephani Campbell at (218) 778-8684.

Sincerely,



Travis Kolari
Plant Manager – Minnesota Ore Operations

Enclosure

cc: File



Continuous Monitoring Systems Reporting Form

Please note: This form has been updated. Please print, complete and remit only the forms. Please see the instructions in the Word version of DRF-1 to ensure proper use and understanding of definitions. DO NOT print and return the instructions.

Use this form to record and report excess emissions (EE) that are identified by *Continuous Monitoring Systems*. This includes Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems (COMS). DRF-1 is the form you must use to report excess emissions from a stack as recorded by your facility's Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems (COMS).

Address hard copy Compliance Tracking Coordinator, Fourth Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

1) General Facility Information

Company name: U. S. Steel - Keetac

AQ file no.: 62B

Report covers Quarter: Third

AQ permit no.: 13700063-005

Year: 2022

2) CEMS/COMS Data Summary Table

[illegible]

3) **Duration of Monitor Downtime:** Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

[illegible]

3i) Total duration of downtime:	0	hours
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4) Duration of Excess Emissions: Provide the following information regarding each individual excess emission

4a)	4b)	4c)	4d)	4e)	4f)	4g)	4h)	4i)	4j)	4k)
Emission Unit ID Number	Monitor ID Number	Pollutant or Parameter Monitored	Beginning Date and Time of EE	End Date and Time of EE	Limit and Averaging Period	Highest Reading of EE with Units (example: 5 lb/hr, etc)	Duration of Exempt EE (include these entries as part of 4i)	Total Duration of All EE	Cause of EE (clarifying comments)	Corrective Action Taken (clarifying comments)
SV051	CM001	NOx	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV051	CM005	SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
4l) Cumulative Duration of Exempt Excess Emissions:							0		4m) Cumulative Total Duration	0 Hrs

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (min)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass (min)	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 2	SV 051	NOx and SO2	7/12/2022 19:12	7/12/2022 19:30	18	Yes	18	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	7/12/2022 19:57	7/12/2022 21:00	63	Yes	63	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	7/12/2022 21:00	7/12/2022 22:07	67	Yes	67	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	7/13/2022 15:06	7/13/2022 16:50	105	Yes	105	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	7/24/2022 9:25	7/24/2022 10:38	74	Yes	74	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	7/25/2022 9:16	7/25/2022 10:55	99	Yes	99	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	7/25/2022 10:55	7/25/2022 12:25	91	Yes	91	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	7/31/2022 19:20	7/31/2022 21:00	99	Yes	99	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	7/31/2022 21:00	7/31/2022 21:56	56	Yes	56	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	8/10/2022 4:35	8/10/2022 5:00	25	Yes	25	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	8/10/2022 5:00	8/10/2022 12:17	437	Yes	437	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	8/10/2022 12:38	8/10/2022 13:00	22	Yes	22	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	8/10/2022 13:00	8/10/2022 14:14	74	Yes	74	Bypass necessary to protect plant equipment	N/A

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (min)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass (min)	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 2	SV 051	NOx and SO2	8/18/2022 9:57	8/18/2022 10:57	60	Yes	60	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	8/18/2022 10:59	8/18/2022 11:03	4	Yes	4	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	8/18/2022 12:19	8/18/2022 12:45	26	Yes	26	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	8/26/2022 7:08	8/26/2022 7:28	20	Yes	20	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/1/2022 5:32	9/1/2022 10:05	273	Yes	273	Bypass necessary to protect plant equipment	N/A
5k) Total duration of allowable monitor bypass:							27	hours	

6) CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.



Signature of Responsible Official

Travis Kolari

Printed Name of Responsible Official

Plant Manager - Minnesota Ore

Title

October 27, 2022

Date

COMS audits

Subject item	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
N/A								

Cylinder gas audit's (CGA)

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
SV051/EU030	2208	CM001	NOx	9/15/2022	Low 0.92%	Pass	12/31/2022	
					Mid 1.44%			
					Low 1.27%			
SV051/EU030	2208	CM005	SO2	9/15/2022	Mid 0.64%	Pass	12/31/2022	

Linearity

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
N/A					Low			
					Mid			
					High			

Relative accuracy test audit (RATA)

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Relative accuracy	Pass/fail	Next test due by:	Comments
SV051		CM001	NOx	3/22/2022	9.9%	Pass	3/31/2023	
SV051		CM005	SO2	3/22/2022	10.1%	Pass	3/31/2023	

CGA Test Report

Page 1 of 1

Facility Name: US Steel KeeTac

Location: ,

NOX WGS Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AE-920-10086-1

Test Date: 9/15/2022

Tester: Ryan Hei

Analyzer Span: 600.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(120.000 PPMW - 180.000 PPMW)	(300.000 PPMW - 360.000 PPMW)
Concentration	130.200	324.000
Cylinder No	CC422243	CC322615
Expiration Date	6/24/2025	8/30/2024

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	12:32	128.000	12:35	318.000
Run 2	12:42	130.000	12:45	320.000
Run 3	12:52	129.000	12:55	320.000
Avg Monitor Response		129.000		319.333
Calibration Error		0.92		1.44
Absolute Diff		1.200		4.667
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response} - \text{Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

CGA Test Report

Page 1 of 1

Facility Name: US Steel KeeTac

Location: ,

SO2 WGS Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AE-920-10086-1

Test Date: 9/15/2022

Tester: Ryan Hei

Analyzer Span: 250.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(50.000 PPMW - 75.000 PPMW)	(125.000 PPMW - 150.000 PPMW)
Concentration	62.800	134.800
Cylinder No	CC401997	CC137851
Expiration Date	3/6/2025	11/23/2028

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	13:11	62.000	13:14	136.000
Run 2	13:21	62.000	13:24	135.000
Run 3	13:31	62.000	13:34	136.000
Avg Monitor Response		62.000		135.667
Calibration Error		1.27		0.64
Absolute Diff		0.800		0.867
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response} - \text{Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

Attachment 1 - Duration of Excess Emissions Table

Emission Unit ID	Monitor ID	Pollutant	Date of EE	Beginning and end time of EE	Magnitude of the EE	Cause of EE	Corrective or Preventative Actions Taken
SV051	CM001	NOx	7/1/22-9/30/22	7/1/22-9/30/22	NOx emissions have not increased at U. S. Steel - Keetac. The applicable limit is significantly lower than Keetac's historic emissions – using good combustion practices. Because the FIP limit is significantly more stringent than the existing state standard, the emissions at Keetac, despite good combustion practices are substantially higher than the existing FIP limit.	The USEPA Federal Implementation Plan for Regional Haze for Keetac which established significantly more stringent limits became effective on September 8, 2019. This limit is currently under judicial review in the U.S. Court of Appeals for the Eighth Circuit in which U. S. Steel has challenged the technological and economical feasibility of the limit. There is also ongoing mediation between U. S. Steel and USEPA to resolve that case and to develop revised NOx limits.	U. S. Steel – Keetac is actively in mediation with USEPA regarding the FIP NOx limits. During this mediation process, U. S. Steel has completed studies regarding Keetac emissions in an effort to reach resolution. USEPA is reviewing these materials. In the meantime, U. S. Steel – Keetac is relying on good combustion practices to minimize emissions while avoiding impacts to safety and pellet quality.
SV051	CM005	SO2	N/A	N/A	N/A	N/A	N/A

Summary Table by Monitor Downtime Type
U. S. Steel - Keetac
3rd Quarter 2022

NOx

Line	Duration (Hrs)	Description
Line 2	0	Automatic Calibration
	0	Data Handling System Malfunction
	0	Sample Interface Malfunction
	0	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction
	0	Preventative Maintenance

SO2

Line	Duration (Hrs)	Description
Line 2	0	Automatic Calibration
	0	Data Handling System Malfunction
	0	Sample Interface Malfunction
	0	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction
	0	Preventative Maintenance



U. S. Steel Corporation
Minnesota Ore Operations
P.O. Box 417
Mt. Iron, MN 55768

CERTIFIED MAIL 7021 0350 0002 0965 3292

October 27, 2022

Air Quality Compliance Tracking Coordinator
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

**Re: United States Steel Corporation, Minnesota Ore Operations – Minntac
Air Emissions Permit No. 13700005-006
Quarterly Continuous Monitoring System Deviation Report**

Dear Supervisor:

Enclosed with this letter is U. S. Steel – Minntac's (Minntac) Quarterly Excess Emissions Reporting Form for the 3rd quarter of 2022. NOx/SO₂ Continuous Emission Monitoring Systems (CEMS) are certified on all Agglomerator Waste Gas Lines.

Deviations associated with Emission Limits

There were no deviations during the 3rd quarter of 2022.

Deviations associated with Monitor Downtime

There were one hundred and thirty-five instances of monitor downtime for either NOx or SO₂. The individual downtime durations and causes are listed in the monitor downtime section of this report.


Deviations associated with Monitor Bypass

Minntac utilizes a grate/kiln system for pelletizing taconite. Although this is an extremely hot process (with temperatures exceed 2500°F in the kiln), the equipment is designed to withstand the high temperatures and will do so during normal operation. However, the grate is very susceptible to heat damage during upset conditions or if stopped for any reason while it is hot. To prevent equipment damage and heat related safety issues during these situations, large amounts of heat must be released from the grate as soon as possible. For that reason the system was designed such that when the grate stops or gets overheated, a stack cap is lifted to release heat through an emergency stack. At this time the monitor is bypassed. These situations are the only times the monitor is bypassed. Because they represent upset conditions or process downtime (production loss), the company has a strong vested interest in minimizing both the number and duration of occurrences.

The times listed in the monitor bypass section are when the grate emergency stack cap is open and there is combustion in the kiln. This is the only time when any NO_x or SO₂ is emitted. Times when the cap is open but there is no combustion in the kiln are not listed. For this reporting period, bypass times were excluded during the period in February where Lines 3 and 4 were unable to operate due to the product handling system unable to operate as a result of a structural failure. However, since the indurating furnaces provide the vast majority of heat to the building during the winter months, the flames were re-lit to provide heat to the building to avoid freezing water systems. The indurating furnaces were not in a period of operation, startup, shutdown or malfunction.

If you have any questions concerning these forms, please contact Stephani Campbell at (218) 778-8684.

Sincerely,



Lukas Klemke
Plant Manager – Minntac

Enclosure

cc: File



**Minnesota Pollution
Control Agency**

520 Lafayette Road North
St. Paul, MN 55155-4194

DRF-1

Excess Emissions Reporting Form

Air Quality Permit Program

Doc Type: Excess Emission Report

Note: Please complete, and remit only the forms. Please see the instructions to ensure proper use and understanding of definitions.

Do not print and return the instructions.

General Information about Deviation and Compliance Reporting

If your permit requires you to submit deviation reports or an annual compliance certification, you should use the Deviation Reporting Forms (DRFs) and Annual Compliance Certification Report (CR-04), unless you get Minnesota Pollution Control Agency (MPCA) approval to use another format or your facility's permit specifies otherwise. There are two separate DRF forms: DRF-1 and DRF-2.

DRF-1 is used to report direct excess stack emissions (EE) recorded by Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems

DRF-2 is used to report deviations recorded by periodic monitoring systems, deviations of permitted operating conditions and surrogate parameters whether recorded
Some examples: flow rate, temperature, throughput, control equipment operating parameters, fuel-use records

CR-04: is used to report facility compliance status at the end of each year if required by your permit.

Address hard copy report submittals to: Air Compliance Tracking Coordinator, Minnesota Pollution Control Agency
520 Lafayette Road North, St. Paul, Minnesota 55155-4195

Or e-mail a signed and scanned PDF copy to: AQRoutineReport.PCA@state.mn.us
(see e-mail instructions in "Routine Air Report Instructions Letter" at:
<http://www.pca.state.mn.us/nwqh472>)

1) General Facility Information

Facility name:	United States Steel Corporation, Minnesota Ore Operations, Minntac	AQ file no.:	26A
County:	St. Louis	AQ permit #:	13700005
Report covers quarter:	Third	Year:	2022

2) CEMS/COMS Data Summary Table

				Duration of Monitor Downtime		Duration of Excess Emissions (EE)			
2a)	2b)	2c)	2d)	3i)	2e)	4l)	2f)	4m)	2g)
Monitor ID Number	Monitor ID Pollutant	EU/SV ID Number	Total Operating Time (TOT)	Total Duration of Monitor Downtime (hr)	Downtime % Of TOT	Cumulative Duration of Exempt EE	Exempt EE % of TOT	Cumulative Total Duration of All EE	Total EE % of TOT
MR 001	NOx	SV-103	2119	44	2.1%	0	0%	0	0%
MR 002	NOx	SV-118	2125	32	1.5%	0	0%	0	0%
MR 003	NOx	SV-127	2134	4	0.2%	0	0%	0	0%
MR 004	NOx	SV-144	2195	31	1.4%	0	0%	0	0%
MR 005	NOx	SV-151	2166	34	1.6%	0	0%	0	0%
MR 001	SO2	SV-103	2119	77	3.6%	0	0%	0	0%
MR 002	SO2	SV-118	2125	67	3.2%	0	0%	0	0%
MR 003	SO2	SV-127	2134	36	1.7%	0	0%	0	0%
MR 004	SO2	SV-144	2195	46	2.1%	0	0%	0	0%
MR 005	SO2	SV-151	2166	34	1.6%	0	0%	0	0%

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3a) Monitor ID Number	3b) Pollutant or parameter monitored	3c) Emission Unit Being Monitored	3d) Beginning Date and Time of Downtime	3e) End Date and Time of Downtime	3f) Duration of Downtime (minutes)	3g) Reason for Monitor Downtime (clarifying comments)	3h) Corrective Action Taken (clarifying comments)
Line 3	NOx	SV103	07/18/2022 05:00:00	07/18/2022 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	07/18/2022 06:00:00	07/18/2022 08:59:00	180	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	NOx	SV103	07/18/2022 09:00:00	07/18/2022 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	07/20/2022 10:00:00	07/20/2022 10:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	07/23/2022 05:00:00	07/23/2022 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	07/23/2022 06:00:00	07/23/2022 10:59:00	300	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	NOx	SV103	07/26/2022 17:00:00	07/27/2022 04:59:00	720	Primary Analyzer Malfunction	Performed necessary maintenance
Line 3	NOx	SV103	07/27/2022 05:00:00	07/27/2022 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	07/27/2022 06:00:00	07/27/2022 06:59:00	60	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	NOx	SV103	08/22/2022 21:00:00	08/22/2022 23:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 3	NOx	SV103	08/23/2022 12:00:00	08/23/2022 13:59:00	120	Primary Analyzer Malfunction	Performed necessary maintenance
Line 3	NOx	SV103	08/25/2022 05:00:00	08/25/2022 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	08/25/2022 06:00:00	08/25/2022 07:59:00	120	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	NOx	SV103	08/25/2022 08:00:00	08/25/2022 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	09/06/2022 11:00:00	09/06/2022 11:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	09/17/2022 08:00:00	09/17/2022 10:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 3	NOx	SV103	09/19/2022 09:00:00	09/19/2022 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	09/28/2022 11:00:00	09/28/2022 11:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	09/30/2022 10:00:00	09/30/2022 10:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	09/30/2022 12:00:00	09/30/2022 12:59:00	60	Preventative Maintenance	Performed necessary maintenance
Line 3	NOx	SV103	09/30/2022 13:00:00	09/30/2022 13:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	07/15/2022 05:00:00	07/15/2022 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	07/15/2022 06:00:00	07/15/2022 08:59:00	180	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	SO2	SV103	07/18/2022 06:00:00	07/18/2022 08:59:00	180	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	SO2	SV103	07/18/2022 09:00:00	07/18/2022 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	07/19/2022 05:00:00	07/19/2022 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	07/19/2022 06:00:00	07/19/2022 08:59:00	180	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	SO2	SV103	07/19/2022 09:00:00	07/19/2022 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	07/20/2022 10:00:00	07/20/2022 10:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	07/23/2022 05:00:00	07/23/2022 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	07/23/2022 06:00:00	07/23/2022 10:59:00	300	Excess Drift Primary Analyzer	Performed necessary maintenance

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)
Monitor ID Number	Pollutant or parameter monitored	Emission Unit Being Monitored	Beginning Date and Time of Downtime	End Date and Time of Downtime	Duration of Downtime (minutes)	Reason for Monitor Downtime (clarifying comments)	Corrective Action Taken (clarifying comments)
Line 3	SO2	SV103	07/26/2022 17:00:00	07/27/2022 04:59:00	720	Primary Analyzer Malfunction	Performed necessary maintenance
Line 3	SO2	SV103	07/27/2022 05:00:00	07/27/2022 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	07/27/2022 06:00:00	07/27/2022 06:59:00	60	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	SO2	SV103	08/01/2022 05:00:00	08/01/2022 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	08/01/2022 06:00:00	08/01/2022 08:59:00	180	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	SO2	SV103	08/01/2022 09:00:00	08/01/2022 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	08/22/2022 21:00:00	08/22/2022 23:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 3	SO2	SV103	08/23/2022 05:00:00	08/23/2022 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	08/23/2022 06:00:00	08/23/2022 06:59:00	60	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	SO2	SV103	08/23/2022 07:00:00	08/23/2022 07:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	08/23/2022 12:00:00	08/23/2022 13:59:00	120	Primary Analyzer Malfunction	Performed necessary maintenance
Line 3	SO2	SV103	08/25/2022 05:00:00	08/25/2022 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	08/25/2022 06:00:00	08/25/2022 07:59:00	120	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	SO3	SV103	08/25/2022 08:00:00	08/25/2022 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO4	SV103	09/06/2022 11:00:00	09/06/2022 11:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO5	SV103	09/16/2022 17:00:00	09/17/2022 04:59:00	720	Primary Analyzer Malfunction	Performed necessary maintenance
Line 3	SO6	SV103	09/17/2022 05:00:00	09/17/2022 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO7	SV103	09/17/2022 06:00:00	09/17/2022 11:59:00	360	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	SO8	SV103	09/17/2022 12:00:00	09/17/2022 12:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	09/19/2022 09:00:00	09/19/2022 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	09/28/2022 11:00:00	09/28/2022 11:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	09/30/2022 10:00:00	09/30/2022 10:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	09/30/2022 12:00:00	09/30/2022 12:59:00	60	Preventative Maintenance	Performed necessary maintenance
Line 3	SO2	SV103	09/30/2022 13:00:00	09/30/2022 13:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	07/13/2022 07:00:00	07/13/2022 07:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	07/19/2022 20:00:00	07/20/2022 05:59:00	600	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	07/20/2022 06:00:00	07/20/2022 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	07/20/2022 07:00:00	07/20/2022 09:59:00	180	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	NOx	SV118	07/20/2022 15:00:00	07/20/2022 15:59:00	60	Preventative Maintenance	Performed necessary maintenance
Line 4	NOx	SV118	08/08/2022 14:00:00	08/08/2022 16:59:00	180	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	08/08/2022 17:00:00	08/08/2022 23:59:00	420	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	NOx	SV118	08/09/2022 01:00:00	08/09/2022 05:59:00	300	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	NOx	SV118	09/20/2022 14:00:00	09/20/2022 14:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	07/13/2022 07:00:00	07/13/2022 07:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	07/19/2022 20:00:00	07/20/2022 05:59:00	600	Primary Analyzer Malfunction	Performed necessary maintenance

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3a) Monitor ID Number	3b) Pollutant or parameter monitored	3c) Emission Unit Being Monitored	3d) Beginning Date and Time of Downtime	3e) End Date and Time of Downtime	3f) Duration of Downtime (minutes)	3g) Reason for Monitor Downtime (clarifying comments)	3h) Corrective Action Taken (clarifying comments)
Line 4	SO2	SV118	07/20/2022 06:00:00	07/20/2022 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	07/20/2022 07:00:00	07/20/2022 09:59:00	180	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	07/20/2022 13:00:00	07/20/2022 15:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	07/21/2022 06:00:00	07/21/2022 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	07/21/2022 07:00:00	07/21/2022 07:59:00	60	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	07/21/2022 08:00:00	07/21/2022 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	08/08/2022 14:00:00	08/08/2022 16:59:00	180	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	08/08/2022 17:00:00	08/08/2022 23:59:00	420	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	08/09/2022 01:00:00	08/09/2022 05:59:00	300	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	08/09/2022 06:00:00	08/09/2022 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	08/09/2022 07:00:00	08/09/2022 07:59:00	60	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	08/09/2022 08:00:00	08/09/2022 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	08/10/2022 14:00:00	08/10/2022 19:59:00	360	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	08/11/2022 14:00:00	08/11/2022 18:59:00	300	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	08/14/2022 14:00:00	08/11/2022 19:59:00	360	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	08/21/2022 14:00:00	08/11/2022 16:59:00	180	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	09/07/2022 12:00:00	09/07/2022 18:59:00	420	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	09/20/2022 14:00:00	09/20/2022 14:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 5	NOx	SV127	08/12/2022 06:00:00	08/12/2022 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	08/12/2022 07:00:00	08/12/2022 07:59:00	60	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 5	NOx	SV127	08/12/2022 08:00:00	08/12/2022 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	09/15/2022 15:00:00	09/15/2022 15:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	07/03/2022 06:00:00	07/03/2022 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	07/03/2022 07:00:00	07/04/2022 05:59:00	1,380	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 5	SO2	SV127	07/04/2022 06:00:00	07/04/2022 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	07/04/2022 07:00:00	07/04/2022 08:59:00	120	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 5	SO2	SV127	07/04/2022 09:00:00	07/04/2022 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	07/20/2022 19:00:00	07/20/2022 22:59:00	240	Primary Analyzer Malfunction	Performed necessary maintenance
Line 5	SO2	SV127	08/12/2022 06:00:00	08/12/2022 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	08/12/2022 07:00:00	08/12/2022 07:59:00	60	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 5	SO2	SV127	08/12/2022 08:00:00	08/12/2022 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	09/15/2022 15:00:00	09/15/2022 15:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	NOx	SV144	07/21/2022 10:00:00	07/21/2022 10:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	NOx	SV144	08/26/2022 07:00:00	08/26/2022 16:59:00	600	Preventative Maintenance	Performed necessary maintenance
Line 6	NOx	SV144	08/26/2022 18:00:00	08/26/2022 20:59:00	180	Preventative Maintenance	Performed necessary maintenance

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)
Monitor ID Number	Pollutant or parameter monitored	Emission Unit Being Monitored	Beginning Date and Time of Downtime	End Date and Time of Downtime	Duration of Downtime (minutes)	Reason for Monitor Downtime (clarifying comments)	Corrective Action Taken (clarifying comments)
Line 6	NOx	SV144	08/27/2022 21:00:00	08/27/2022 21:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	NOx	SV144	09/01/2022 10:00:00	09/01/2022 14:59:00	300	Preventative Maintenance	Performed necessary maintenance
Line 6	NOx	SV144	09/02/2022 11:00:00	09/02/2022 11:59:00	60	Preventative Maintenance	Performed necessary maintenance
Line 6	NOx	SV144	09/06/2022 09:00:00	09/06/2022 10:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 6	NOx	SV144	09/09/2022 13:00:00	09/09/2022 13:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	NOx	SV144	09/09/2022 15:00:00	09/09/2022 15:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	NOx	SV144	09/19/2022 08:00:00	09/19/2022 09:59:00	120	Primary Analyzer Malfunction	Performed necessary maintenance
Line 6	NOx	SV144	09/19/2022 10:00:00	09/19/2022 11:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 6	NOx	SV144	09/19/2022 12:00:00	09/19/2022 12:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 6	NOx	SV144	09/22/2022 10:00:00	09/22/2022 10:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	07/14/2022 06:00:00	07/14/2022 07:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	07/21/2022 10:00:00	07/21/2022 10:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	08/26/2022 07:00:00	08/26/2022 16:59:00	600	Preventative Maintenance	Performed necessary maintenance
Line 6	SO2	SV144	08/26/2022 18:00:00	08/26/2022 20:59:00	180	Preventative Maintenance	Performed necessary maintenance
Line 6	SO2	SV144	08/27/2022 05:00:00	08/27/2022 19:59:00	840	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 6	SO2	SV144	08/27/2022 21:00:00	08/27/2022 21:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	09/01/2022 10:00:00	09/01/2022 14:59:00	300	Preventative Maintenance	Performed necessary maintenance
Line 6	SO2	SV144	09/02/2022 11:00:00	09/02/2022 11:59:00	60	Preventative Maintenance	Performed necessary maintenance
Line 6	SO2	SV144	09/06/2022 09:00:00	09/06/2022 10:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	09/09/2022 13:00:00	09/09/2022 13:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	09/09/2022 15:00:00	09/09/2022 15:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	09/19/2022 09:00:00	09/19/2022 09:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 6	SO2	SV144	09/19/2022 10:00:00	09/19/2022 11:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	09/19/2022 12:00:00	09/19/2022 12:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 6	SO2	SV144	09/22/2022 10:00:00	09/22/2022 10:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	NOx	SV151	08/14/2022 03:00:00	08/14/2022 21:59:00	1,140	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 7	NOx	SV151	08/15/2022 00:00:00	08/15/2022 08:59:00	540	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 7	NOx	SV151	09/04/2022 08:00:00	09/04/2022 10:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 7	NOx	SV151	09/17/2022 18:00:00	09/17/2022 20:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 7	SO2	SV151	08/14/2022 03:00:00	08/14/2022 21:59:00	1,140	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 7	SO2	SV151	08/15/2022 00:00:00	08/15/2022 08:59:00	540	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 7	SO2	SV151	09/04/2022 08:00:00	09/04/2022 10:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 7	SO2	SV151	09/17/2022 18:00:00	09/17/2022 20:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
3i) Total duration of downtime:					405	hours	

4) Duration of Excess Emissions: Provide the following information regarding each individual excess emission identified by a monitor. Make a separate table for each monitor, as needed.

4a) Emission Unit ID Number	4b) Monitor ID Number	4c) Pollutant or Parameter Monitored	4d) Beginning Date and Time of EE	4e) End Date and Time of EE	4f) Limit and Averaging Period	4g) Highest Reading of EE with Units (example: 5 lb/hr, etc)	4h) Duration of Exempt EE (include these entries as part of 4i)	4i) Total Duration of All EE	4j) Cause of EE (clarifying comments)	4k) Corrective Action Taken (clarifying comments)
SV-103	MR 001	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV-118	MR 002	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV-127	MR 003	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV-144	MR 004	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV-151	MR 005	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A

4l) Cumulative Duration of Exempt Excess Emissions: 0 4m) Cumulative Total 0

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 3	SV103	NOx/SO2	7/4/22 12:33	7/4/22 12:54	22	YES	22	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	7/6/22 9:45	7/6/22 12:06	141	YES	141	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	7/14/22 5:00	7/14/22 6:30	90	YES	90	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	7/14/22 6:30	7/14/22 13:22	412	YES	412	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	7/14/22 13:25	7/14/22 13:37	11	YES	11	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	7/19/22 8:02	7/19/22 8:21	19	YES	19	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	7/19/22 9:37	7/19/22 10:42	65	YES	65	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/8/22 11:32	8/8/22 13:59	147	YES	147	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/9/22 11:59	8/9/22 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/9/22 14:30	8/9/22 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/9/22 22:30	8/10/22 2:42	253	YES	253	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/10/22 15:20	8/10/22 16:09	48	YES	48	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/10/22 23:35	8/11/22 1:07	92	YES	92	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/17/22 0:45	8/17/22 1:11	26	YES	26	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/17/22 22:50	8/17/22 23:14	24	YES	24	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/31/22 12:53	8/31/22 13:34	41	YES	41	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/1/22 7:08	9/1/22 14:16	428	YES	428	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/11/22 19:55	9/11/22 20:59	64	YES	64	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/14/22 15:59	9/14/22 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 3	SV103	NOx/SO2	9/14/22 22:30	9/15/22 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/15/22 6:30	9/15/22 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/15/22 14:30	9/15/22 21:36	426	YES	426	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/15/22 21:41	9/15/22 22:03	22	YES	22	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/15/22 22:04	9/15/22 22:30	26	YES	26	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/15/22 22:30	9/16/22 0:38	128	YES	128	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/16/22 6:34	9/16/22 9:49	195	YES	195	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/17/22 18:41	9/17/22 19:14	33	YES	33	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/17/22 22:44	9/18/22 0:17	93	YES	93	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/22/22 10:24	9/22/22 11:02	38	YES	38	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/26/22 6:44	9/26/22 7:02	18	YES	18	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/26/22 22:23	9/26/22 22:30	7	YES	7	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/26/22 22:30	9/26/22 22:56	26	YES	26	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/12/22 4:26	7/12/22 6:30	124	YES	124	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/12/22 6:30	7/12/22 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/12/22 14:30	7/12/22 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/12/22 22:30	7/13/22 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/13/22 6:30	7/13/22 8:26	116	YES	116	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/14/22 12:31	7/14/22 12:48	16	YES	16	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 4	SV118	NOx/SO2	7/14/22 13:47	7/14/22 14:30	43	YES	43	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/14/22 14:30	7/14/22 14:45	15	YES	15	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/14/22 15:42	7/14/22 17:34	112	YES	112	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/27/22 18:00	7/27/22 20:29	149	YES	149	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/2/22 15:06	8/2/22 15:38	32	YES	32	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/5/22 9:31	8/5/22 12:15	164	YES	164	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/11/22 5:53	8/11/22 6:30	37	YES	37	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/11/22 6:30	8/11/22 7:57	87	YES	87	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/17/22 0:38	8/17/22 1:02	24	YES	24	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/17/22 22:54	8/17/22 23:17	23	YES	23	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/18/22 6:47	8/18/22 9:34	167	YES	167	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/24/22 2:58	8/24/22 6:30	212	YES	212	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/24/22 6:30	8/24/22 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/24/22 14:30	8/24/22 16:10	100	YES	100	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/25/22 5:09	8/25/22 6:30	81	YES	81	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/25/22 6:30	8/25/22 9:56	207	YES	207	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/27/22 11:34	8/27/22 11:39	5	YES	5	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/27/22 19:34	8/27/22 19:42	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/11/22 1:33	9/11/22 1:50	17	YES	17	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 4	SV118	NOx/SO2	9/11/22 8:00	9/11/22 8:59	59	YES	59	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/14/22 19:59	9/14/22 22:30	151	YES	151	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/14/22 22:30	9/15/22 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/15/22 6:30	9/15/22 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/15/22 14:30	9/15/22 18:22	232	YES	232	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/19/22 6:27	9/19/22 6:30	3	YES	3	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/19/22 6:30	9/19/22 6:46	16	YES	16	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/23/22 4:32	9/23/22 6:30	118	YES	118	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/23/22 6:30	9/23/22 11:14	284	YES	284	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/8/22 14:19	7/8/22 14:30	11	YES	11	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/8/22 14:30	7/8/22 16:26	117	YES	117	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/8/22 16:27	7/8/22 16:30	3	YES	3	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/11/22 22:28	7/11/22 22:59	31	YES	31	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/12/22 13:59	7/12/22 22:30	511	YES	511	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/12/22 22:30	7/13/22 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/13/22 6:30	7/13/22 12:28	358	YES	358	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/13/22 12:30	7/13/22 12:38	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/13/22 13:45	7/13/22 14:30	45	YES	45	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/13/22 14:30	7/13/22 16:16	106	YES	106	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 5	SV127	NOx/SO2	7/15/22 18:25	7/15/22 20:23	118	YES	118	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/21/22 11:07	7/21/22 11:24	17	YES	17	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/27/22 18:10	7/27/22 18:23	13	YES	13	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/2/22 15:06	8/2/22 15:25	19	YES	19	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/2/22 20:06	8/2/22 22:30	144	YES	144	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/2/22 22:30	8/3/22 1:25	175	YES	175	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/16/22 9:50	8/16/22 10:49	58	YES	58	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/17/22 0:42	8/17/22 1:49	67	YES	67	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/17/22 22:50	8/17/22 23:27	37	YES	37	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/19/22 22:55	8/19/22 22:58	3	YES	3	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/19/22 22:58	8/19/22 23:01	3	YES	3	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/19/22 23:39	8/20/22 0:11	32	YES	32	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/20/22 1:36	8/20/22 2:41	65	YES	65	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/20/22 3:03	8/20/22 3:16	13	YES	13	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/25/22 5:39	8/25/22 6:30	51	YES	51	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/25/22 6:30	8/25/22 11:57	327	YES	327	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/28/22 0:31	8/28/22 2:45	135	YES	135	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/11/22 1:33	9/11/22 1:58	25	YES	25	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/11/22 21:54	9/11/22 22:59	65	YES	65	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/14/22 9:59	9/14/22 14:30	271	YES	271	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 5	SV127	NOx/SO2	9/14/22 14:30	9/14/22 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/14/22 22:30	9/15/22 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/15/22 6:30	9/15/22 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/15/22 14:30	9/15/22 15:52	82	YES	82	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/15/22 15:55	9/15/22 16:11	16	YES	16	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/16/22 7:56	9/16/22 8:50	54	YES	54	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/20/22 3:37	9/20/22 6:20	163	YES	163	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/23/22 4:29	9/23/22 6:30	121	YES	121	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/23/22 6:30	9/23/22 10:09	219	YES	219	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/1/22 9:06	7/1/22 9:48	42	YES	42	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/2/22 18:25	7/2/22 19:40	75	YES	75	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/2/22 19:52	7/2/22 22:30	158	YES	158	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/2/22 22:30	7/2/22 23:18	48	YES	48	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/7/22 3:22	7/7/22 3:34	12	YES	12	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/8/22 10:09	7/8/22 12:06	118	YES	118	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/21/22 11:16	7/21/22 11:45	29	YES	29	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/22/22 9:27	7/22/22 14:22	295	YES	295	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/25/22 7:07	7/25/22 11:24	256	YES	256	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/25/22 11:48	7/25/22 13:48	120	YES	120	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/27/22 17:47	7/27/22 18:10	23	YES	23	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 6	SV144	NOx/SO2	7/28/22 17:50	7/28/22 18:16	26	YES	26	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/28/22 18:53	7/28/22 19:10	16	YES	16	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/3/22 15:08	8/3/22 15:59	51	YES	51	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/4/22 15:36	8/4/22 16:05	29	YES	29	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/12/22 11:37	8/12/22 12:44	67	YES	67	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/13/22 11:11	8/13/22 13:24	133	YES	133	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/14/22 1:07	8/14/22 2:03	56	YES	56	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/14/22 20:29	8/14/22 20:33	4	YES	4	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/14/22 21:06	8/14/22 21:15	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/14/22 23:21	8/15/22 0:02	41	YES	41	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/16/22 22:31	8/16/22 22:59	28	YES	28	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/17/22 8:59	8/17/22 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/17/22 14:30	8/17/22 20:03	333	YES	333	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/18/22 7:49	8/18/22 7:59	10	YES	10	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/19/22 21:31	8/19/22 21:52	21	YES	21	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/20/22 16:04	8/20/22 16:11	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/20/22 16:17	8/20/22 17:47	90	YES	90	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/24/22 10:25	8/24/22 12:17	112	YES	112	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/31/22 2:50	8/31/22 6:30	220	YES	220	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/31/22 6:30	8/31/22 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 6	SV144	NOx/SO2	8/31/22 14:30	8/31/22 20:40	370	YES	370	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/31/22 21:10	8/31/22 22:30	79	YES	79	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/31/22 22:30	8/31/22 22:39	9	YES	9	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/2/22 7:23	9/2/22 7:36	13	YES	13	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/2/22 7:41	9/2/22 8:21	40	YES	40	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/3/22 2:13	9/3/22 2:51	38	YES	38	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/3/22 2:56	9/3/22 6:30	214	YES	214	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/3/22 6:30	9/3/22 14:01	451	YES	451	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/3/22 15:25	9/3/22 15:36	12	YES	12	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/3/22 15:38	9/3/22 16:17	39	YES	39	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/3/22 16:28	9/3/22 16:33	5	YES	5	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/3/22 17:17	9/3/22 17:31	14	YES	14	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/9/22 8:32	9/9/22 8:37	5	YES	5	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/9/22 8:38	9/9/22 8:54	16	YES	16	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/12/22 14:40	9/12/22 14:54	15	YES	15	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/16/22 19:02	9/16/22 21:59	177	YES	177	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/17/22 0:59	9/17/22 8:19	440	YES	440	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/17/22 9:04	9/17/22 11:19	135	YES	135	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/17/22 12:00	9/17/22 13:03	63	YES	63	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/17/22 12:00	9/17/22 13:03	63	YES	63	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 6	SV144	NOx/SO2	9/22/22 6:36	9/22/22 11:16	279	YES	279	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/2/22 19:52	7/2/22 22:30	158	YES	158	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/2/22 22:30	7/2/22 22:43	13	YES	13	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/3/22 21:23	7/3/22 21:40	16	YES	16	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/5/22 22:08	7/5/22 22:30	22	YES	22	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/5/22 22:30	7/5/22 23:41	71	YES	71	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/6/22 10:03	7/6/22 11:12	69	YES	69	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/8/22 10:12	7/8/22 12:21	130	YES	130	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/25/22 7:09	7/25/22 11:24	255	YES	255	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/25/22 14:30	7/25/22 19:59	329	YES	329	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/27/22 8:59	7/27/22 14:30	331	YES	331	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/27/22 14:30	7/27/22 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/27/22 22:30	7/28/22 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/28/22 6:30	7/28/22 9:20	170	YES	170	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/29/22 10:46	7/29/22 10:57	11	YES	11	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/1/22 3:33	8/1/22 3:41	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/14/22 23:22	8/15/22 0:31	69	YES	69	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/16/22 7:14	8/16/22 14:03	409	YES	409	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/2/22 7:22	9/2/22 8:38	75	YES	75	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/3/22 4:09	9/3/22 6:30	140	YES	140	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 7	SV151	NOx/SO2	9/3/22 6:30	9/3/22 12:46	376	YES	376	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/3/22 15:22	9/3/22 15:32	9	YES	9	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/3/22 15:39	9/3/22 16:05	25	YES	25	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/6/22 5:12	9/6/22 5:37	25	YES	25	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/16/22 1:46	9/16/22 1:53	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/16/22 4:49	9/16/22 4:59	11	YES	11	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/16/22 7:35	9/16/22 9:37	121	YES	121	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/16/22 19:02	9/16/22 20:59	117	YES	117	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/17/22 0:59	9/17/22 9:00	481	YES	481	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/17/22 10:32	9/17/22 10:45	13	YES	13	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/17/22 21:54	9/17/22 22:30	36	YES	36	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/18/22 17:31	9/18/22 18:07	36	YES	36	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/20/22 0:43	9/20/22 1:56	73	YES	73	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/20/22 7:20	9/20/22 7:29	9	YES	9	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/20/22 7:32	9/20/22 14:30	418	YES	418	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/20/22 14:30	9/20/22 16:44	134	YES	134	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/22/22 6:38	9/22/22 10:36	239	YES	239	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/24/22 3:27	9/24/22 3:38	12	YES	12	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/24/22 5:03	9/24/22 6:30	87	YES	87	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/24/22 6:30	9/24/22 8:59	149	YES	149	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 7	SV151	NOx/SO2	9/26/22 3:34	9/26/22 3:48	14	YES	14	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/26/22 4:25	9/26/22 4:43	18	YES	18	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/26/22 4:58	9/26/22 6:30	92	YES	92	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/26/22 6:30	9/26/22 10:55	265	YES	265	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/28/22 10:03	9/28/22 10:10	6	YES	6	Bypass necessary to protect plant equipment.	N/A
5k) Total duration of allowable monitor bypass:							468	hours	

6) CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.



Signature of Responsible Official

Lukas Klemke

Printed Name of Responsible Official

Plant Manager - Minnesota Ore

Title

October 27, 2022

Date

COMS audits

Subject item	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
N/A								

Cylinder gas audit's (CGA)

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
SV103	2119	MR001	NOx	8/23/2022	Low 0.46%	Pass	12/31/2022	
					Mid 0.87%			
SV118	2125	MR002	NOx	8/23/2022	Low 0.94%	Pass	12/31/2022	
					Mid 0.10%			
SV127	2134	MR003	NOx	8/23/2022	Low 1.51%	Pass	12/31/2022	
					Mid 0.17%			
SV144	2195	MR004	NOx	8/24/2022	Low 0.92%	Pass	12/31/2022	
					Mid 0.86%			
SV151	2166	MR005	NOx	8/24/2022	Low 0.43%	Pass	12/31/2022	
					Mid 0.53%			
SV103	2119	MR001	SO2	8/23/2022	Low 10.07%	Pass	12/31/2022	
					Mid 3.34%			
SV118	2125	MR002	SO2	8/23/2022	Low 5.62%	Pass	12/31/2022	
					Mid 2.73%			
SV127	2134	MR003	SO2	8/23/2022	Low 5.10%	Pass	12/31/2022	
					Mid 1.34%			
SV144	2195	MR004	SO2	8/24/2022	Low 5.62%	Pass	12/31/2022	
					Mid 2.78%			
SV151	2166	MR005	SO2	8/24/2022	Low 0.65%	Pass	12/31/2022	
					Mid 0.18%			

Linearity

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
N/A					Low			
					Mid			
					High			

Relative accuracy test audit (RATA)

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Relative accuracy	Pass/fail	Next test due by:	Comments
SV103		MR001	SO2	5/26/2022	2.6%	Pass	2nd Qtr 2023	
SV103		MR001	NOx	5/26/2022	13.6%	Pass	2nd Qtr 2023	
SV118		MR002	SO2	6/1/2022	9.4%	Pass	2nd Qtr 2023	
SV118		MR002	NOx	6/1/2022	11.7%	Pass	2nd Qtr 2023	
SV127		MR003	SO2	6/3/2022	3.0%	Pass	2nd Qtr 2023	
SV127		MR003	NOx	6/3/2022	12.5%	Pass	2nd Qtr 2023	
SV144		MR004	SO2	5/25/2022	10.1%	Pass	2nd Qtr 2023	
SV144		MR004	NOx	5/25/2022	13.9%	Pass	2nd Qtr 2023	
SV151		MR005	SO2	5/24/2022	3.3%	Pass	2nd Qtr 2023	
SV151		MR005	NOx	5/24/2022	10.1%	Pass	2nd Qtr 2023	

CGA Test Report

Page 1 of 1

Facility Name: US Steel MinTac

Location: ,

SO2 LINE_7 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: ZA-920-10336-2

Test Date: 8/24/2022

Tester: Ryan Hei

Analyzer Span: 100.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(20.000 PPMW - 30.000 PPMW)	(50.000 PPMW - 60.000 PPMW)
Concentration	25.500	55.100
Cylinder No	CC417095	CC743793
Expiration Date	10/23/2023	12/7/2029

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	09:08	26.000	09:11	55.000
Run 2	09:20	25.000	09:23	55.000
Run 3	09:32	25.000	09:35	55.000
Avg Monitor Response		25.333		55.000
Calibration Error		0.65		0.18
Absolute Diff		0.167		0.100
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response} - \text{Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

CGA Test Report

Page 1 of 1

Facility Name: US Steel MinTac

Location: ,

NOX LINE_7 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: ZA-920-10336-2

Test Date: 8/24/2022

Tester: Ryan Hei

Analyzer Span: 500.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(100.000 PPMW - 150.000 PPMW)	(250.000 PPMW - 300.000 PPMW)
Concentration	123.800	277.800
Cylinder No	CC417095	CC743793
Expiration Date	10/23/2023	12/7/2029

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	09:08	124.000	09:11	275.000
Run 2	09:20	123.000	09:23	277.000
Run 3	09:32	126.000	09:35	277.000
Avg Monitor Response		124.333		276.333
Calibration Error		0.43		0.53
Absolute Diff		0.533		1.467
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response} - \text{Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

CGA Test Report

Page 1 of 1

Facility Name: US Steel MinTac

Location: ,

SO2 LINE_6 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: ZA-920-10336-1

Test Date: 8/24/2022

Tester: Ryan Hei

Analyzer Span: 100.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(20.000 PPMW - 30.000 PPMW)	(50.000 PPMW - 60.000 PPMW)
Concentration	25.500	55.100
Cylinder No	CC417095	CC743793
Expiration Date	10/23/2023	12/7/2029

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	08:08	23.500	08:11	50.100
Run 2	08:20	23.600	08:23	54.400
Run 3	08:32	25.100	08:35	56.200
Avg Monitor Response		24.067		53.567
Calibration Error		5.62		2.78
Absolute Diff		1.433		1.533
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response} - \text{Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

CGA Test Report

Page 1 of 1

Facility Name: US Steel MinTac

Location: ,

NOX LINE_6 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: ZA-920-10336-1

Test Date: 8/24/2022

Tester: Ryan Hei

Analyzer Span: 500.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(100.000 PPMW - 150.000 PPMW)	(250.000 PPMW - 300.000 PPMW)
Concentration	123.800	277.800
Cylinder No	CC417095	CC743793
Expiration Date	10/23/2023	12/7/2029

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	08:08	121.900	08:11	270.800
Run 2	08:20	123.100	08:23	279.900
Run 3	08:32	123.000	08:35	275.500
Avg Monitor Response		122.667		275.400
Calibration Error		0.92		0.86
Absolute Diff		1.133		2.400
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response} - \text{Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

CGA Test Report

Page 1 of 1

Facility Name: US Steel MinTac

Location: ,

SO2 LINE_5 Audit Test Results

Mfr. & Model: AMETEK 920 S02 NOX

Serial Number: AX-920-9640-3

Test Date: 8/23/2022

Tester: Ryan Hei

Analyzer Span: 100.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(20.000 PPMW - 30.000 PPMW)	(50.000 PPMW - 60.000 PPMW)
Concentration	25.500	54.900
Cylinder No	CC257218	CC743784
Expiration Date	10/23/2023	12/7/2029

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	10:24	23.900	10:28	53.700
Run 2	10:36	24.400	10:40	53.700
Run 3	10:49	24.300	10:53	55.100
Avg Monitor Response		24.200		54.167
Calibration Error		5.10		1.34
Absolute Diff		1.300		0.733
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response} - \text{Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

CGA Test Report

Page 1 of 1

Facility Name: US Steel MinTac

Location: ,

NOX LINE_5 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AX-920-9640-3

Test Date: 8/23/2022

Tester: Ryan Hei

Analyzer Span: 500.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(100.000 PPMW - 150.000 PPMW)	(250.000 PPMW - 300.000 PPMW)
Concentration	123.800	277.300
Cylinder No	CC257218	CC743784
Expiration Date	10/23/2023	12/7/2029

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	10:24	127.100	10:28	278.200
Run 2	10:36	125.200	10:40	277.300
Run 3	10:49	124.700	10:53	277.800
Avg Monitor Response		125.667		277.767
Calibration Error		1.51		0.17
Absolute Diff		1.867		0.467
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response} - \text{Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

CGA Test Report

Page 1 of 1

Facility Name: US Steel MinTac

Location: ,

SO2 LINE_4 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AX-920-9640-2

Test Date: 8/23/2022

Tester: Ryan Hei

Analyzer Span: 100.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(20.000 PPMW - 30.000 PPMW)	(50.000 PPMW - 60.000 PPMW)
Concentration	25.500	54.900
Cylinder No	CC257218	CC743784
Expiration Date	10/23/2023	12/7/2029

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	09:19	24.100	09:23	53.700
Run 2	09:32	23.700	09:36	54.200
Run 3	09:43	24.400	09:47	52.300
Avg Monitor Response		24.067		53.400
Calibration Error		5.62		2.73
Absolute Diff		1.433		1.500
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response} - \text{Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

CGA Test Report

Page 1 of 1

Facility Name: US Steel MinTac

Location: ,

NOX LINE_4 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AX-920-9640-2

Test Date: 8/23/2022

Tester: Ryan Hei

Analyzer Span: 500.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(100.000 PPMW - 150.000 PPMW)	(250.000 PPMW - 300.000 PPMW)
Concentration	123.800	277.300
Cylinder No	CC257218	CC743784
Expiration Date	10/23/2023	12/7/2029

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	09:19	123.300	09:23	278.500
Run 2	09:32	123.000	09:36	275.400
Run 3	09:43	121.600	09:47	277.200
Avg Monitor Response		122.633		277.033
Calibration Error		0.94		0.10
Absolute Diff		1.167		0.267
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response} - \text{Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

CGA Test Report

Page 1 of 1

Facility Name: US Steel MinTac

Location: ,

SO2 LINE_3 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AX-920-9640-1

Test Date: 8/23/2022

Tester: kevin maxie

Analyzer Span: 100.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(20.000 PPMW - 30.000 PPMW)	(50.000 PPMW - 60.000 PPMW)
Concentration	25.500	54.900
Cylinder No	CC257218	CC743784
Expiration Date	10/23/2023	12/7/2029

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	08:09	27.100	08:13	56.200
Run 2	08:22	29.600	08:26	57.800
Run 3	08:35	27.500	08:39	56.200
Avg Monitor Response		28.067		56.733
Calibration Error		10.07		3.34
Absolute Diff		2.567		1.833
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response} - \text{Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

CGA Test Report

Page 1 of 1

Facility Name: US Steel MinTac

Location: ,

NOX LINE_3 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AX-920-9640-1

Test Date: 8/23/2022

Tester: Kevin Maxie

Analyzer Span: 500.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(100.000 PPMW - 150.000 PPMW)	(250.000 PPMW - 300.000 PPMW)
Concentration	123.800	277.300
Cylinder No	CC257218	CC743784
Expiration Date	10/23/2023	12/7/2029

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	08:09	123.200	08:13	274.900
Run 2	08:22	125.100	08:26	274.900
Run 3	08:35	124.800	08:39	274.900
Avg Monitor Response		124.367		274.900
Calibration Error		0.46		0.87
Absolute Diff		0.567		2.400
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response} - \text{Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

Summary Table by Monitor Downtime Type
U. S. Steel - Minntac
3rd Quarter 2022

NOx

Line	Duration (Hrs)	Description
Line 3	12	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	11	Excess Drift Primary Analyzer
	20	Primary Analyzer Malfunction
	1	Preventative Maintenance
	0	Sample Interface Malfunction
Line 4	4	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	15	Excess Drift Primary Analyzer
	1	Preventative Maintenance
	1	Sample Interface Malfunction
	11	Primary Analyzer Malfunction
Line 5	3	Automatic Calibration
	0	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction
	1	Excess Drift Primary Analyzer
	0	Sample Interface Malfunction
	0	Primary Analyzer Malfunction
Line 6	9	Automatic Calibration
	0	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction
	0	Excess Drift Primary Analyzer
	3	Primary Analyzer Malfunction
	0	Sample Interface Malfunction
	19	Preventative Maintenance
Line 7	0	Automatic Calibration
	0	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction
	28	Excess Drift Primary Analyzer
	6	Primary Analyzer Malfunction
	0	Sample Interface Malfunction
	0	Preventative Maintenance

SO2

Line	Duration (Hrs)	Description
Line 3	20	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	27	Excess Drift Primary Analyzer
	0	Sample Interface Malfunction
	1	Preventative Maintenance
	29	Primary Analyzer Malfunction
Line 4	8	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	37	Excess Drift Primary Analyzer
	21	Primary Analyzer Malfunction
	1	Sample Interface Malfunction
	0	Preventative Maintenance
Line 5	6	Automatic Calibration
	0	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction
	26	Excess Drift Primary Analyzer
	0	Sample Interface Malfunction
	4	Primary Analyzer Malfunction
	0	Preventative Maintenance
Line 6	11	Automatic Calibration
	0	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction
	14	Excess Drift Primary Analyzer
	2	Primary Analyzer Malfunction
	19	Preventative Maintenance
	0	Sample Interface Malfunction
Line 7	0	Automatic Calibration
	0	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction